

REMARKS

I. Summary of the Examiner's Action

A. Claim Rejections

Claims 1 – 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 5,442,625 to Gitlin *et al.* (hereinafter “the Gitlin patent”) in view of United States Patent No. 6,115,608 to Duran *et al.* (hereinafter “the Duran patent”).

Claims 10 – 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Gitlin patent in view of the Duran patent as applied to claim 4, and further in view of United States Patent No. 6,603,826 to Cupo *et al.* (hereinafter “the Cupo patent”).

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Gitlin in view of Duran and Cupo as applied to claim 11, and further in view of United States Patent Application Serial No. US 2005/0174978 to Shalvi *et al.*, (hereinafter “the Shalvi application”).

These rejections are respectfully disagreed with, and traversed below.

II. Summary of September 22, 2005 Telephonic Interview

In accordance with 37 CFR § 1.133(b) and MPEP 713.04, Applicants' Representative provides the following summary of the September 22, 2005 Telephonic Interview. Applicants' Representative presented several arguments in the Interview. In particular, Applicants' Representative noted that the Examiner was relying on a statement in the Field of Invention section of the Gitlin patent as teaching "using a variable bandwidth waveform with multiple bonded transmitters and receivers that are each agile in both frequency and code to provide a variable bandwidth and variable rate multiple access system" as recited in claim 1. Applicants' Representative respectfully submitted that although the Gitlin patent uses the words "variable bandwidth" in the Field of Invention, there is no further mention of what is meant by "variable bandwidth". Rather, the balance of the Gitlin patent deals with variable bit rate data transmission. In view of this fact, it is not seen how the Gitlin patent either describes or suggests the subject matter of claim 1.

In addition, Applicants' Representative reminded the Examiner that Applicants' claims are to be read in light of the specification. In view of this, Applicants have clearly assigned different meanings to "variable bandwidth" and "variable rate", and have used them distinctly in the claims. Accordingly, for the Examiner to read a reference which discloses only variable bit rate data transmission (there is no teaching as to what, if anything "variable bandwidth" means within the context of the Gitlin patent) as meeting both the "variable bit rate" and "variable bandwidth" elements of claim 1 not only

violates the “all elements” rule but also renders “variable bandwidth” a nullity and effectively reads the element out of the claim, a clear violation of the canons of claim construction.

Further, Applicants’ Representative responded to Examiner’s apparent concern that Applicants’ claims may be “too broad” in an abstract sense. Applicants’ Representative reminded the Examiner that Applicants are entitled to claims as broad as the prior art allows. Accordingly, since the Gitlin patent does not disclose the subject matter of the claims, Applicants are entitled to them.

Applicants’ Representative presented the foregoing arguments with full knowledge of his duty of candor and good faith under 37 CFR 1.56 and with a view toward concluding prosecution in the case.

III. Applicants’ Response

A. Rejection of Claims 1 – 9 under 35 U.S.C. § 103(a)

Claim 1 recites (emphasis added):

1. A method for operating a communication system, comprising steps of:

defining the system as a combined Code Division Multiple Access CDMA and Frequency Division Multiple Access FDMA system; and

using a variable bandwidth waveform with multiple bonded transmitters and receivers that are each agile in both frequency and code to provide a variable bandwidth and variable rate multiple access system.

Applicants respectfully submit that it is not seen where the Gitlin patent either describes or suggests the emphasized subject matter of claim 1. A particular advantage of Applicants' invention as claimed is the use of "a variable bandwidth waveform with multiple bonded transmitters and receivers that are each agile in both frequency and code to provide a variable bandwidth and variable rate multiple access system." It is not seen where any appreciation for this mode of operation is either described or suggested in the Gitlin patent.

Gitlin admittedly does refer to "variable bandwidth" at Column 1, lines 7 – 10 (reproduced here):

"This invention relates to code division multiple access (CDMA) systems and, more particularly, to a CDMA system for providing a user with variable and dynamic bandwidth capacity access."

There is no further teaching in the Gitlin patent about what is meant by "variable and dynamic bandwidth." Instead, at Column 1, lines 26 – 39, Gitlin notes that in a conventional CDMA system

"a unique binary spreading sequence (a code) is assigned for each call to each user. Multiplied by the assigned code, the user's signal is 'spread' onto a channel bandwidth much wider than the user signal bandwidth.

The ratio of the system channel bandwidth to the user's bandwidth is commonly called 'the spreading gain.' All active users share the same system channel bandwidth frequency spectrum at the same time. Given a required signal-to-interference (S/I), the equivalent system capacity is proportional to the spreading gain. The signal of each user is separated from the others at the receiver by using a correlator keyed with the associated code sequence to 'de-spread' the desired signal."

Then, at Column 1, lines 40 – 42, Gitlin identifies the problem with which it is concerned:

"In these CDMA systems, there is a continuing need to increase the performance of the system by accommodating users having different source rates."

Continuing, in the following Summary of the Invention section at Column 1, lines 45 – 59, Gitlin identifies its purported invention (emphasis added):

"In accordance with the present invention, a multi-code CDMA system allows a user at a radio transmitter unit to dynamically change its source data rate. In response to a user input selecting one of said plurality of source bit rates, an adjustable coding means spreads and transmits the user's digital information received at the selected bit rate which at least equals the highest bit rate of said plurality of source bit rates. According to one feature, the plurality of source bit rates includes a basic bit rate R and at least one bit rate which is a multiple M of the basis bit rate R , where M is an integer of at least 1. The user's input selects a particular user source bit rate by identifying a basic bit rate multiple M to a base station that is to receive the transmission."

Importantly, there is no mention of a “variable and dynamic bandwidth” mode of operation in the summary of Giltin’s invention. Rather, Gitlin’s subject matter is only concerned with accommodating variable user data transmission rates.

In contrast to the Gitlin patent which merely accommodates changing user data rates, Applicants’ invention makes a variable bandwidth available to a user:

“Another advantage of adding frequency agility to a PN-code agile modulator 26 and demodulator 34 is that it permits the system to have flexibility in its consumed bandwidth. For example, a system that can operate only with 14 MHz wide channels cannot be used if the bandwidth allocated to the system is only 3.5 MHz. On the other hand, if a system uses CDMA/FDMA with channel bonding, then both the BS 11 and the SSs 10 have a bank of receivers that can each independently be tuned to one of a variety of frequencies, in addition to one of a variety of PN codes. If the bandwidth of any one subchannel is, for example 3.5 MHz, then by tuning some of the modulators and demodulators to each 3.5 MHz slot within a 14 MHz allocation, the bandwidth can be consumed efficiently. Thus a CDMA/FDMA system with four 3.5 MHz subchannels can operate in a 14 MHz, but a 14 MHz bandwidth CDMA system can not operate in a 3.5 MHz channel. Furthermore, even though a 10.5 Mhz bandwidth pure CDMA system and a CDMA/FDMA system with three 3.5 MHz subchannels occupy the same bandwidth and provide approximately the same throughput when fully loaded, the CDMA/FDMA hybrid system is far more flexible. For example, if a 14 MHz frequency allocation is divided into four 3.5 MHz subchannels (labeled A, B, C and D) and subchannel C is allocated to another system, then a 10.5 MHz bandwidth pure CDMA system could not operate. In contrast, a CDMA/FDMA

system could simply use subchannels A, B and D, leaving subchannel C to other systems. The ability to use non-contiguous subchannels provides operators a unique flexibility that can be very useful when attempting to add a new service to a band of frequency where some of the frequency subchannels have previously been allocated to other systems.”
[Application, Page 18, lines 7 – 29 (emphasis added)]

Again, the Gitlin patent shows no appreciation for such modes of operation.

As discussed in the September 22 Telephonic Interview, claim 1 recites “using a variable bandwidth waveform with multiple bonded transmitters and receivers that are each agile in both frequency and code to provide a variable bandwidth and variable rate multiple access system.” Now having a better understanding of Applicants’ invention from a review of the Application, it is clear that Gitlin neither describes nor suggests this subject matter of claim 1. There is simply no description anywhere in Gitlin of transmitters and receivers that are capable of operating across a varying bandwidth as in the case of Applicants’ invention.

In addition, to read Gitlin’s subject matter as encompassing both “variable rate” and “variable bandwidth” of claim 1 is to render “variable bandwidth” a nullity by reading it out of the claims. It is clear that Applicants used “variable rate” and “variable bandwidth” to mean different things, and Examiner cannot ignore this in construing the claims.

Further, during the September 22 Telephonic Interview the Examiner expressed concerns that claim 1 may be too broad, apparently in some abstract sense. Applicants' Representative is not quite sure what the Examiner meant, but reminds the Examiner that Applicants are entitled to claims that are as broad as the prior art will allow. Further, Applicants are their own lexicographers and the Examiner should not seek to substitute his own terminology for those of the Applicants. In a related vein the MPEP states the following:

“Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement.” (MPEP 2173.02)

The Duran patent, which was cited in combination with the Gitlin patent, adds nothing to the analysis. As the Examiner admitted during the Telephonic Interview, the Duran patent was cited for the mere fact that a mobile communications system may operate in a hybrid manner combining both CDMA and FDMA aspects, but there was no description or suggestion about the particulars of such a hybrid system in Duran. Instead, Duran concerned handoff procedures for providing a seamless transfer of a active call between cellular communications systems operating in different signal formats and having different modes of handoff request initiation.

For the foregoing reasons, Applicants respectfully request that the Examiner withdraw the rejection of claim 1. Applicants respectfully submit that independent claim 4 is patentable for similar reasons in addition to those associated with its unique aspects. Further, Applicants respectfully submit that dependent claims 2 – 3 and 5 – 9 are allowable as depending from claims allowable dependent claims.

Applicants respectfully add the following remarks providing additional support for the patentability of the dependent claims.

Dependent claim 3 recites a method as set forth in claim 1 “where channel bonding across both code space and frequency space enables the system to operate in at least one of a variable, contiguous or non-contiguous bandwidth at a finely variable rate.” It is not seen where in the portions of the Gitlin patent relied upon by the Examiner – Title; Column 1, lines 6 – 10, 40 – 42 and Column 3, lines 30 – 41; claim 3 – there is either a description or suggestion of “channel bonding across both code space and frequency space.” If the Examiner disagrees, Applicants respectfully request that the Examiner both point out with particularity and explain where “channel bonding across both code space and frequency space” is either described or suggested in the relied-upon portion or anywhere else in the Gitlin patent.

B. Rejection of Claims 10 – 12 under 35 U.S.C. § 103(a)

Applicants note that claims 10 – 12 depend from an independent claim that is patentable for the foregoing reasons. As a result, Applicants respectfully submit that claims 10 - 12 are also allowable.

C. Rejection of Claim 13 under 35 U.S.C. § 103(a)

Similarly, claim 13 indirectly depends from an independent claim that is patentable for the foregoing reasons. As a result, Applicant respectfully submits that claim 13 is allowable.

IV. Conclusion

Applicants submit that in light of the foregoing amendments and remarks the application is now in condition for allowance. Applicants therefore respectfully request that the outstanding rejections be withdrawn and that the case be passed to issuance.

Respectfully submitted,

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Date

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